



STIC Search Report

Biotech-Chem Library

STIC Database Tracking Number: 177350

TO: Tamthom Truong
Location: rem/5B19/5C18
Art Unit: 1624
Friday, February 03, 2006

Case Serial Number: 10/829064

From: Paul Schulwitz
Location: Biotech-Chem Library
REM-1A65
Phone: 571-272-2527

Paul.schulwitz@uspto.gov

Search Notes

Examiner Truong,

Please review the attached search results.

If you have any questions or if you would like to refine the search query, please feel free to contact me at any time.

Thank you for using STIC search services!

Paul Schulwitz
Technical Information Specialist
REM-1A65
571-272-2527



STIC SEARCH RESULTS FEEDBACK FORM

Biotech-Chem Library

Questions about the scope or the results of the search? Contact **the searcher or contact:**

Mary Hale, Information Branch Supervisor
Remsen Bldg. 01 D86
571-272-2507

Voluntary Results Feedback Form

➤ *I am an examiner in Workgroup:* *Example: 1610*

➤ *Relevant prior art found, search results used as follows:*

- 102 rejection
- 103 rejection
- Cited as being of interest.
- Helped examiner better understand the invention.
- Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- Foreign Patent(s)
- Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ *Relevant prior art not found:*

- Results verified the lack of relevant prior art (helped determine patentability).
- Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC-Biotech-Chem Library Remsen Bldg.

177350

USPTO
Intranet

Home Index Resources Contact Search

**SERVICES**

Database Search	submit
PLUS Search	submit
Book/Article Delivery	submit
Book/Journal Purchase	submit
Foreign Patents	submit
Telework Support	submit
Translation	submit
SIRA Automation Training	submit
STIC Demos & Events	submit

RESOURCES

STIC Online Catalog	search
Databases	search
E-Books	search
E-Journals	search
Legal Tools	search
Nanotechnology	search
Reference Tools	search

STIC

About Us	About Us
FAQ	FAQ
Locations & Hours	Locations & Hours
News	News
Site Map	Site Map
Staff	Staff

Search STIC Site

Online Database Search Form

Search requests relating to published applications, patent families, and litigation can be submitted by filling out this form and clicking on "Send."

* indicates mandatory information.

*** Tech Center:**

TC 1600 TC 1700 TC 2100 TC 2600 TC 2800
 TC 2900 TC 3600 TC 3700 Law Lib Other

Your Contact Information:

* Email Address:
 (e.g., Susan.Smith@uspto.gov)
 Mailbox No.:

2-m amst

* Case serial number:

If not related to a patent application, please enter NA here.

Class / Subclass(es)

Earliest Priority Filing Date:

Format preferred for results:

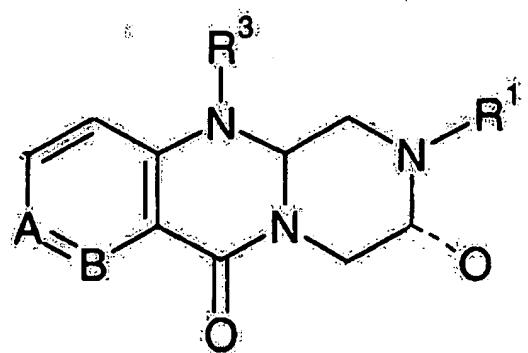
Paper E-mail Diskette

Provide detailed information on your search topic:

Query attached

- In your own words, describe in detail the concepts or subjects you want us to search.
- Include synonyms, keywords, and acronyms. Define terms that have special meaning.
- For Chemical Structure Searches Only
 Include the elected species or structures, keywords, synonyms, acronyms, and formulas.
- For Sequence Searches Only
 Include all pertinent information (parent, child, divisional, or issued patent numbers) and the sequence itself.
- For Foreign Patent Family Searches Only
 Include the country name and patent number.
- Provide examples or give us relevant citations, authors, etc., if known.
- FAX or send the abstract, pertinent claims (not all of the claims), drawings, and tables to the EIC or branch library.

Enter your Search Topic Information below:



(search also
tautomer)

A is CR^6 or N
 B is CR^7 or N } A + B NOT simultaneously N.
 R' is Alkyl, cycloalkyl, alkenyl, alkynyl
 (each is optionally substituted).

R^3 is $(CH_2)_{1-5}$ — (Ring)

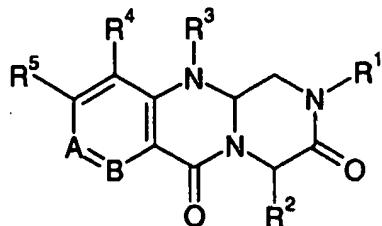
wherein Ring is phenyl, imidazolyl, triazolyl
 pyridinyl or "Het"

See also attached claims 1 + 6 (process)

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

1. (Original) A compound of formula I,



wherein:

A is CR⁶ or N;

B is CR⁷ or N, provided that A and B are not simultaneously N;

R¹ is (C₁-C₁₀)-alkyl, (C₃-C₈)-cycloalkyl, (C₂-C₁₀)-alkenyl or (C₂-C₁₀)-alkynyl, each of which is unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, (C₃-C₈)-cycloalkyl, phenyl, biphenyl, naphthyl, indanyl and heteroaryl, wherein the phenyl, biphenyl, naphthyl, indanyl and heteroaryl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, (C₁-C₆)-alkyl, trifluoromethyl, (C₁-C₆)-alkoxy and trifluoromethoxy;

R² is hydrogen, (C₁-C₄)-alkyl, trifluoromethyl, -(CH₂)_a(C₃-C₈)-cycloalkyl, -(CH₂)_a-phenyl, -(CH₂)_b-imidazolyl or -(CH₂)_b-pyridinyl, wherein the phenyl, imidazolyl and pyridinyl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, (C₁-C₆)-alkyl, trifluoromethyl, (C₁-C₆)-alkoxy and trifluoromethoxy;

a is 0, 1 or 2;

R³ is -(CH₂)_b-phenyl, -(CH₂)_b-imidazolyl, -(CH₂)_b-triazolyl, -(CH₂)_b-Het or -(CH₂)_b-pyridinyl, wherein the phenyl, imidazolyl, triazolyl and pyridinyl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, (C₁-C₆)-alkyl, trifluoromethyl, (C₁-C₆)-alkoxy and trifluoromethoxy;

b is 1, 2, 3 or 4;

R⁴, R⁵, R⁶ and R⁷ are each, independently, hydrogen, (C₁-C₄)-alkyl, trifluoromethyl, (C₁-C₄)-alkoxy, trifluoromethoxy, halogen, nitro, cyano, -CO-R¹⁰, -NR⁸R⁹, -NH-CO-(C₁-C₄)-alkyl, -SO₂NR⁸R⁹, -SO₂-(C₁-C₄)-alkyl or -SO₂-(CH₂)_c-phenyl, wherein the phenyl is unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, (C₁-C₆)-alkyl, trifluoromethyl, (C₁-C₆)-alkoxy and trifluoromethoxy;

c is 0, 1 or 2;

R⁸ and R⁹ are each, independently, hydrogen or (C₁-C₄)-alkyl;

R¹⁰ is hydroxy, (C₁-C₄)-alkoxy or -NR⁶R⁷;

Het is a saturated 5-membered or 6-membered monocyclic heterocycle containing a ring nitrogen atom via which it is bonded, wherein the monocyclic heterocycle optionally contains a further ring heteroatom selected from the group consisting of N, O and S, and is unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of (C₁-C₄)-alkyl and -(CH₂)_a-phenyl, wherein the phenyl is unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, (C₁-C₆)-alkyl, trifluoromethyl, (C₁-C₆)-alkoxy and trifluoromethoxy;

d is 0, 1 or 2;

and

heteroaryl is an aromatic 5-membered to 10-membered, monocyclic or bicyclic heterocycle containing 1, 2, 3 or 4 identical or different ring heteroatoms selected from the group consisting of N, O and S; or a stereoisomer or a mixture of stereoisomers thereof in any ratio, or a physiologically acceptable salt thereof;

provided that the compound of formula I is not the compound wherein

A is CH,

B is CH,

R¹ is methyl,

R² is methyl,

R³ is unsubstituted benzyl,

R⁴ is hydrogen, and

R⁵ is hydrogen.

2. (Currently amended) A ~~The~~ compound according to claim 1, wherein:

A is CR⁶ or N;

B is CR⁷ or N, provided that A and B are not simultaneously N;

R¹ is (C₁-C₆)-alkyl, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of (C₃-C₆)-cycloalkyl, phenyl, biphenylyl, naphthyl, indanyl, thienyl and pyridinyl, wherein the phenyl, biphenylyl, naphthyl, indanyl, thienyl and pyridinyl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of fluorine, chlorine, bromine, cyano, (C₁-C₄)-alkyl, trifluoromethyl, (C₁-C₄)-alkoxy and trifluoromethoxy;

R² is hydrogen, (C₁-C₄)-alkyl, trifluoromethyl, -(CH₂)_a(C₃-C₆)-cycloalkyl, -(CH₂)_a-phenyl, -(CH₂)_a-imidazolyl or -(CH₂)_a-pyridinyl, wherein the phenyl, imidazolyl and pyridinyl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected

b is 1, 2, 3 or 4;

R⁴ and R⁷ are each, independently, hydrogen, (C₁-C₄)-alkyl, trifluoromethyl, methoxy, fluorine or chlorine;

R⁵ and R⁶ are each, independently, hydrogen, (C₁-C₄)-alkyl, trifluoromethyl, methoxy, fluorine, chlorine, nitro, -CO-R¹⁰, -NR⁸R⁹, -NH-CO-methyl, -SO₂-NR⁸R⁹, -SO₂-methyl or SO₂-CH₂-phenyl;

R⁸ and R⁹ are each, independently, hydrogen or methyl;

and

R¹⁰ is hydroxy, (C₁-C₂)-alkoxy or -NR⁸R⁹,

or a stereoisomer or a mixture of stereoisomers thereof in any ratio, or a physiologically acceptable salt thereof.

4. (Currently amended) A The compound according to claim 1, wherein:

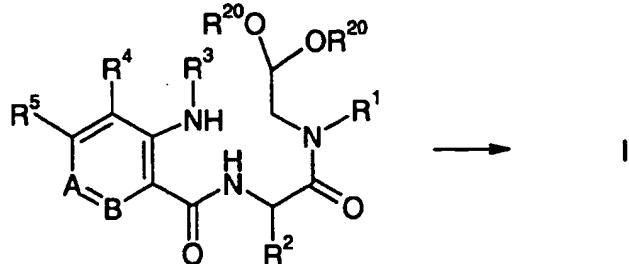
A is CR⁶; and

B is CR⁷,

or a stereoisomer or a mixture of stereoisomers thereof in any ratio, or a physiologically acceptable salt thereof.

5. (Currently amended) A The compound according to claim 1, wherein one of A and B is nitrogen and the other is CR⁶ or CR⁷, or a stereoisomer or a mixture of stereoisomers thereof in any ratio, or a physiologically acceptable salt thereof.

6. (Currently amended) A process for the preparation of the compound of the formula I as defined in claim 1 or wherein one or more functional groups present therein can be in protected form or in the form of a precursor group, comprising treating a compound of the formula VI,



VI

wherein A, B, R¹, R², R³, R⁴ and R⁵ are as defined in claim 1 or one or more functional groups present therein can be in protected form or in the form of a precursor group and R²⁰ is (C₁-C₄)-alkyl, with an acid.

177350

USPTO
Intranet

Home Index Resources Centers Internet Search



**Scientific &
Technical
Information Center**



MEJ

Online Database Search Form

SERVICES

Database Search	submit
PLUS Search	submit
Book/Article Delivery	submit
Book/Journal Purchase	submit
Foreign Patents	submit
Telework Support	submit
Translation	submit
SIRA Automation Training	submit
STIC Demos & Events	submit

RESOURCES

STIC Online Catalog	search
Databases	search
E-Books	search
E-Journals	search
Legal Tools	search
Nanotechnology	search
Reference Tools	search

STIC

About Us	About Us
FAQ	FAQ
Locations & Hours	Locations & Hours
News	News
Site Map	Site Map
Staff	Staff

Search STIC Site

Online Database Search Form

Search requests relating to published applications, patent families, and litigation can be submitted by filling out this form and clicking on "Send."

* indicates mandatory information.

* Tech Center:

TC 1600 TC 1700 TC 2100 TC 2600 TC 2800
 TC 2900 TC 3600 TC 3700 Law Lib Other

Your Contact Information:

* Email Address:
 (e.g., Susan.Smith@uspto.gov)
 Mailbox No.:

2-m am dt

* Case serial number:

If not related to a patent application, please enter NA here.

Class / Subclass(es)

Earliest Priority Filing Date:

Format preferred for results:

Paper E-mail Diskette

Provide detailed information on your search topic:

Query attached

- In your own words, describe in detail the concepts or subjects you want us to search.
- Include synonyms, keywords, and acronyms. Define terms that have special meaning.
- For Chemical Structure Searches Only
Include the elected species or structures, keywords, synonyms, acronyms, and formulas.
- For Sequence Searches Only
Include all pertinent information (parent, child, divisional, or issued patent numbers) and the sequence number.
- For Foreign Patent Family Searches Only
Include the country name and patent number.
- Provide examples or give us relevant citations, authors, etc., if known.
- FAX or send the abstract, pertinent claims (not all of the claims), drawings, claims, and EIS or branch library.

Enter your Search Topic Information below:

=> d his ful

(FILE 'HOME' ENTERED AT 14:57:33 ON 03 FEB 2006)

FILE 'REGISTRY' ENTERED AT 14:57:37 ON 03 FEB 2006

L1 STR
L2 3 SEA SSS SAM L1
L3 62 SEA SSS FUL L1

FILE 'HCAPLUS' ENTERED AT 15:00:39 ON 03 FEB 2006

L4 2 SEA ABB=ON PLU=ON L3
L5 1 SEA ABB=ON PLU=ON US200!-829064/APPS
L6 1 SEA ABB=ON PLU=ON L4 AND L5

FILE 'BEILSTEIN' ENTERED AT 15:01:08 ON 03 FEB 2006

L7 0 SEA SSS SAM L1
L8 1 SEA SSS FUL L1

FILE 'MARPAT' ENTERED AT 15:01:29 ON 03 FEB 2006

L9 0 SEA SSS SAM L1
L10 1 SEA SSS FUL L1
L11 0 SEA ABB=ON PLU=ON L10 NOT L4

FILE HOME

FILE REGISTRY

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 1 FEB 2006 HIGHEST RN 873294-13-4

DICTIONARY FILE UPDATES: 1 FEB 2006 HIGHEST RN 873294-13-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

FILE HCAPLUS

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 3 Feb 2006 VOL 144 ISS 7
FILE LAST UPDATED: 2 Feb 2006 (20060202/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE BEILSTEIN
FILE LAST UPDATED ON JANUARY 17, 2006

FILE COVERS 1771 TO 2005.
FILE CONTAINS 9,428,406 SUBSTANCES

>>>PLEASE NOTE: Reaction Data and substance data are stored in separate documents and can not be searched together in one query. Reaction data for BEILSTEIN compounds may be displayed immediately with the display codes PRE (preparations) and REA (reactions). A substance answer set retrieved after the search for a chemical name, a compounds with available reaction information by combining with PRE/FA, REA/FA or more generally with RX/FA. The BEILSTEIN Registry Number (BRN) is the link between a BEILSTEIN compound and belonging reactions. For more detailed reaction searches BRNs can be searched as reaction partner BRNs Reactant BRN (RX.RBRN) or Product BRN (RX.PBRN).<<<

>>> FOR SEARCHING PREPARATIONS SEE HELP PRE <<<

* PLEASE NOTE THAT THERE ARE NO FORMATS FREE OF COST. *
* SET NOTICE FEATURE: THE COST ESTIMATES CALCULATED FOR SET NOTICE *
* ARE BASED ON THE HIGHEST PRICE CATEGORY. THEREFORE; THESE *
* ESTIMATES MAY NOT REFLECT THE ACTUAL COSTS. *
* FOR PRICE INFORMATION SEE HELP COST *

NEW
* PATENT NUMBERS (PN) AND BABS ACCESSION NUMBERS (BABSAN) CAN NOW BE
SEARCHED, SELECTED AND TRANSFERRED.
* NEW DISPLAY FORMATS ALLREF, ALLP AND BABSAN SHOW ALL REFERENCES,
ALL PATENT REFERENCES, OR ALL BABS ACCESSION NUMBERS FOR A
COMPOUND AT A GLANCE.

FILE MARPAT
FILE CONTENT: 1969-PRESENT (VOL 144 ISS 5 (20060127/ED)

SOME MARPAT RECORDS ARE DERIVED FROM INPI DATA FOR 1969-1987

MOST RECENT CITATIONS FOR PATENTS FROM FIVE MAJOR ISSUING AGENCIES
(COVERAGE TO THESE DATES IS NOT COMPLETE):

US 6962795 08 NOV 2005
DE 1020040544 17 NOV 2005
EP 1595877 16 NOV 2005
JP 2005328067 24 NOV 2005
WO 2005112644 01 DEC 2005

Expanded G-group definition display now available.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

=> fil reg
FILE 'REGISTRY' ENTERED AT 15:02:05 ON 03 FEB 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 1 FEB 2006 HIGHEST RN 873294-13-4
DICTIONARY FILE UPDATES: 1 FEB 2006 HIGHEST RN 873294-13-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

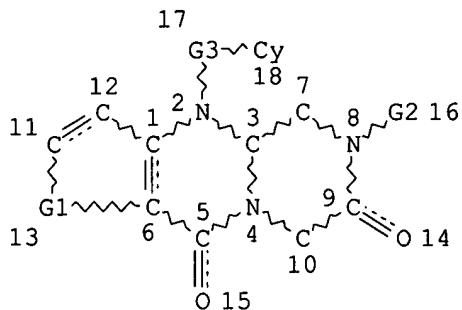
*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

Structure search iteration limits have been increased. See HELP SLIMITS
for details.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> d que stat 13
L1 STR



VAR G1=19-11 20-6/21-11 22-6/22-11 21-6

VAR G2=23/AK

REP G3=(1-5) CH2

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 23

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 23

STEREO ATTRIBUTES: NONE

L3 62 SEA FILE=REGISTRY SSS FUL L1

100.0% PROCESSED 259 ITERATIONS

62 ANSWERS

SEARCH TIME: 00.00.02

```
=> fil hcap
FILE 'HCAPLUS' ENTERED AT 15:02:10 ON 03 FEB 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)
```

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 3 Feb 2006 VOL 144 ISS 7
FILE LAST UPDATED: 2 Feb 2006 (20060202/ED)

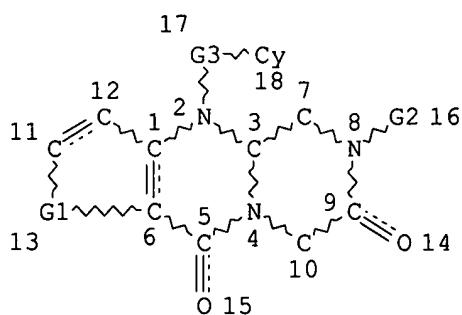
New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que stat 14

L1

STR



VAR G1=19-11 20-6/21-11 22-6/22-11 21-6

VAR G2=23/AK

REP G3=(1-5) CH2

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 23

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 23

STEREO ATTRIBUTES: NONE

L3 62 SEA FILE=REGISTRY SSS FUL L1

L4 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L3

=> d 14 ibib abs hitstr 1-2

L4 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:898609 HCAPLUS

DOCUMENT NUMBER: 141:366248

TITLE: A preparation of triaza- and tetraazaanthracenedione derivatives, useful as cardiovascular agents

INVENTOR(S): Weichert, Andreas; Strobel, Hartmut; Wohlfart, Paulus; Patek, Marcel; Smrcina, Martin; Weichsel, Aleksandra

PATENT ASSIGNEE(S): Aventis Pharma Deutschland GmbH, Germany

SOURCE: Eur. Pat. Appl., 32 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

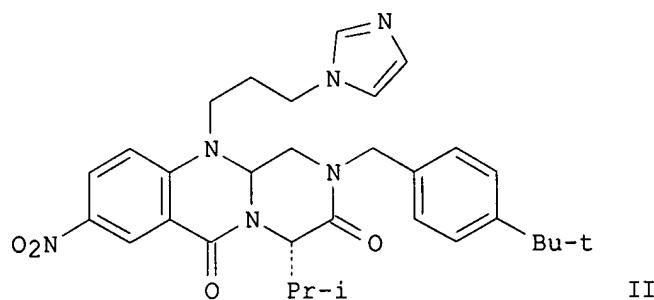
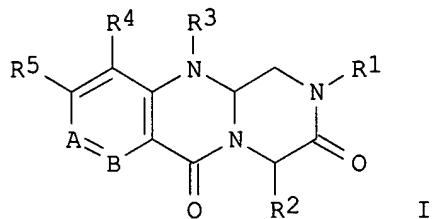
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1471066	A1	20041027	EP 2003-9286	20030424
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CA 2523196	AA	20041104	CA 2004-2523196	20040413
WO 2004094425	A1	20041104	WO 2004-EP3851	20040413
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,				

NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
 TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
 BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
 ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
 SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
 TD, TG

US 2004248900 A1 20041209 US 2004-829064 20040421
 PRIORITY APPLN. INFO.: EP 2003-9286 A 20030424
 US 2003-499521P P 20030902
 WO 2004-EP3851 W 20040413

OTHER SOURCE(S): MARPAT 141:366248
 GI



AB The invention relates to a preparation of triaza- and tetraaza-anthracenedione derivs. of formula I [wherein: A and B are independently selected from N, CH, C-halogen, C-NO₂, or C-CN, etc., but A and B are not simultaneously N; R1 is (un)substituted (cyclo)alkyl or alk(en)ynyl; R2 is H, alkyl, CF₃, or (CH₂)₀₋₂-(phenyl/imidazolyl), etc.; R3 is (CH₂)₁₋₄-(phenyl/imidazolyl/triazolyl) or (CH₂)₁₋₄-pyridinyl, etc.; R4 and R5 are independently selected from H, alkyl, CF₃, or alkoxy, etc.], useful as cardiovascular agents. The title compds. are useful in the treatment of various disease states including cardiovascular disorders such as atherosclerosis, thrombosis, coronary artery disease, hypertension, and cardiac insufficiency. They upregulate the expression of the enzyme endothelial nitric oxide (NO) synthase and can be applied in conditions in which an increased expression of said enzyme or an increased NO level or the normalization of a decreased NO level is desired. For instance, triazaanthracenedione derivative II (activation of eNOS transcription: EC₅₀ = 1.2 μM) was prepared via heterocyclization of 4-tert-butylbenzylamine, Fmoc-L-valine, 2-fluoro-5-nitrobenzoic acid, 2-bromo-1,1-diethoxyethane, and 3-(imidazol-1-yl)propylamine (example 2, no yield data).
 IT 779343-75-8P 779343-77-0P 779343-79-2P
 779343-81-6P 779343-83-8P 779343-85-0P
 779343-87-2P 779343-89-4P 779343-91-8P
 779343-93-0P 779343-95-2P 779343-97-4P

779343-99-6P 779344-01-3P 779344-03-5P
 779344-05-7P 779344-07-9P 779344-08-0P
 779344-09-1P 779344-10-4P 779344-11-5P
 779344-12-6P 779344-13-7P 779344-14-8P
 779344-15-9P 779344-16-0P 779344-17-1P
 779344-18-2P 779344-19-3P 779344-20-6P
 779344-21-7P 779344-22-8P 779344-23-9P
 779344-24-0P 779344-25-1P 779344-27-3P
 779344-29-5P 779344-32-0P 779344-34-2P
779344-36-4P

RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of triaza- and tetraaza-anthracenedione derivs., useful as cardiovascular agents)

RN 779343-75-8 HCAPLUS

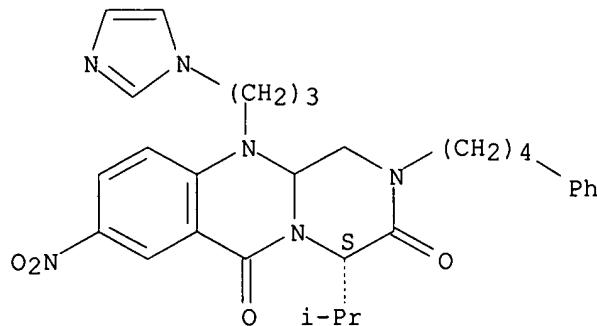
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-nitro-2-(4-phenylbutyl)-(4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 779343-74-7

CMF C30 H36 N6 O4

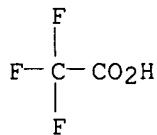
Absolute stereochemistry.



CM 2

CRN 76-05-1

CMF C2 H F3 O2



RN 779343-77-0 HCAPLUS

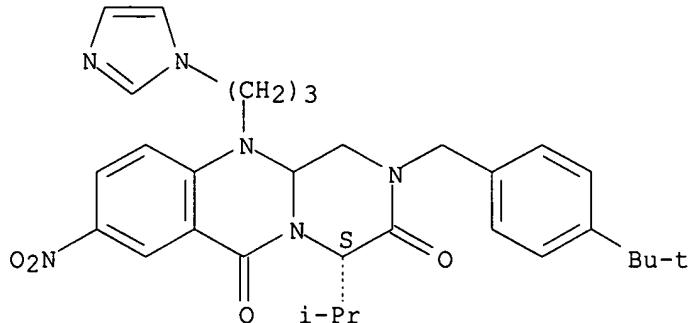
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-nitro-, (4S)-, mono(trifluoroacetate) (9CI)

(CA INDEX NAME)

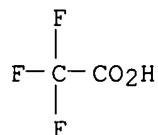
CM 1

CRN 779343-76-9
CMF C31 H38 N6 O4

Absolute stereochemistry.



CM 2

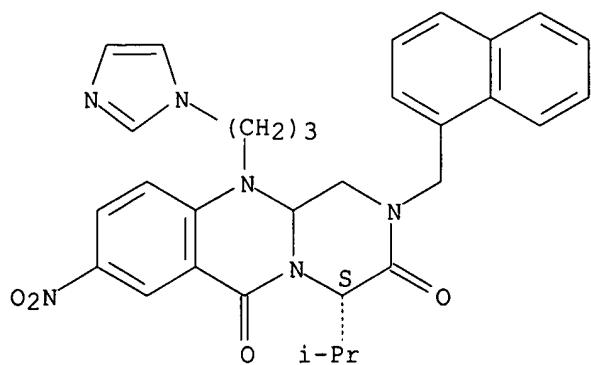
CRN 76-05-1
CMF C2 H F3 O2

RN 779343-79-2 HCAPLUS
 CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-2-(1-naphthalenylmethyl)-8-nitro-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

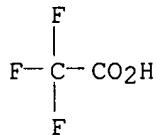
CM 1

CRN 779343-78-1
CMF C31 H32 N6 O4

Absolute stereochemistry.



CM 2

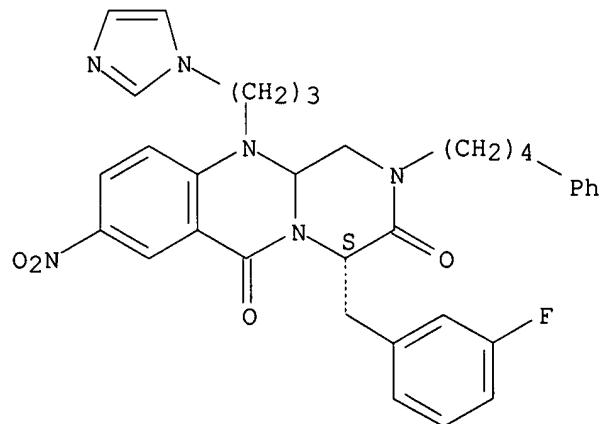
CRN 76-05-1
CMF C2 H F3 O2

RN 779343-81-6 HCAPLUS
 CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-[(3-fluorophenyl)methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-8-nitro-2-(4-phenylbutyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

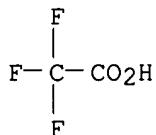
CRN 779343-80-5
CMF C34 H35 F N6 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
 CMF C2 H F3 O2

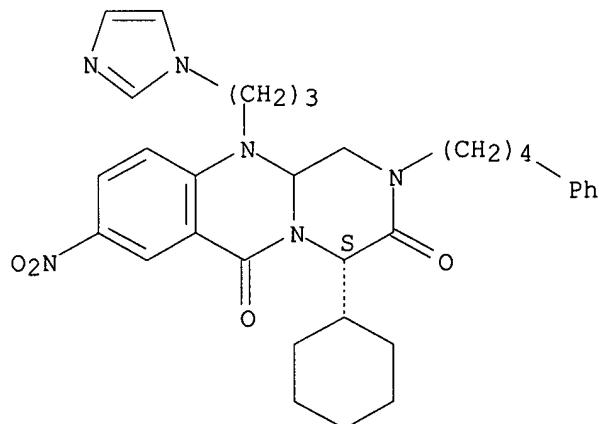


RN 779343-83-8 HCAPLUS
 CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-cyclohexyl-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-8-nitro-2-(4-phenylbutyl)-(4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

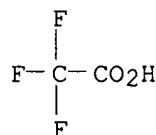
CRN 779343-82-7
 CMF C33 H40 N6 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
 CMF C2 H F3 O2



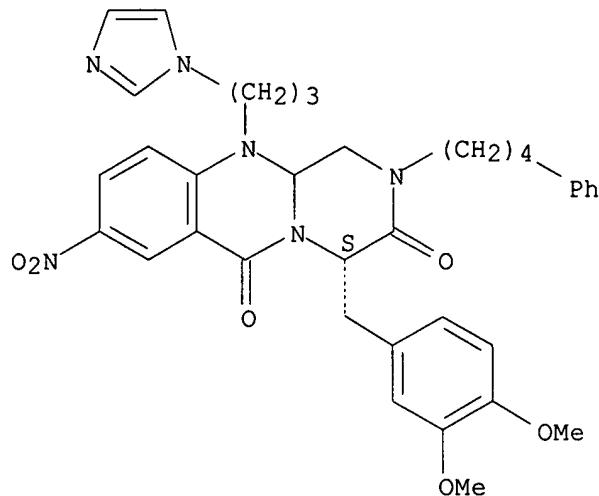
RN 779343-85-0 HCAPLUS
 CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-[(3,4-dimethoxyphenyl)methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-

y1)propyl]-8-nitro-2-(4-phenylbutyl)-, (4S)-, mono(trifluoroacetate) (9CI)
 (CA INDEX NAME)

CM 1

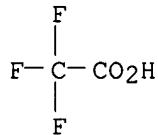
CRN 779343-84-9
 CMF C36 H40 N6 O6

Absolute stereochemistry.



CM 2

CRN 76-05-1
 CMF C2 H F3 O2

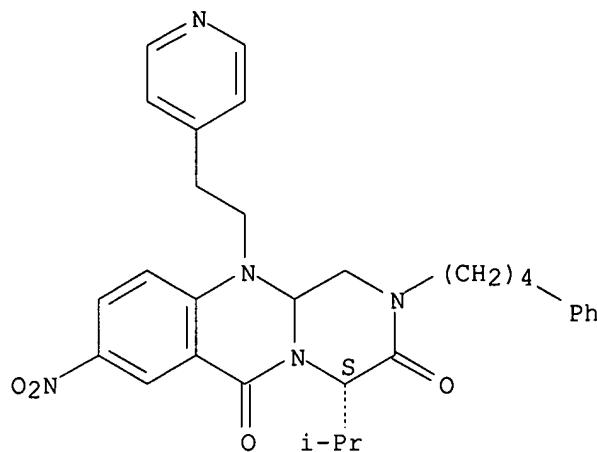


RN 779343-87-2 HCAPLUS
 CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-4-(1-methylethyl)-8-nitro-2-(4-phenylbutyl)-11-[2-(4-pyridinyl)ethyl]-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 779343-86-1
 CMF C31 H35 N5 O4

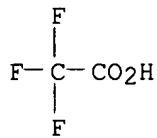
Absolute stereochemistry.



CM 2

CRN 76-05-1

CMF C2 H F3 O2



RN 779343-89-4 HCAPLUS

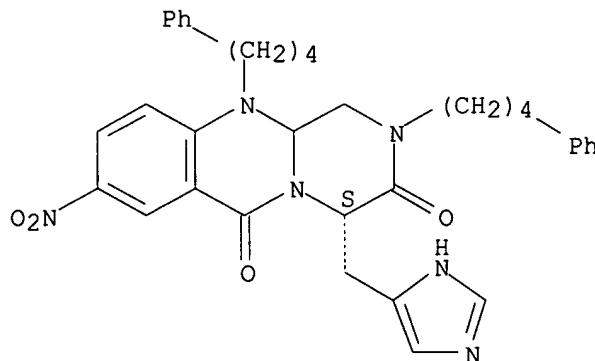
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-4-(1H-imidazol-4-ylmethyl)-8-nitro-2,11-bis(4-phenylbutyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 779343-88-3

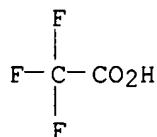
CMF C35 H38 N6 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
 CMF C2 H F3 O2

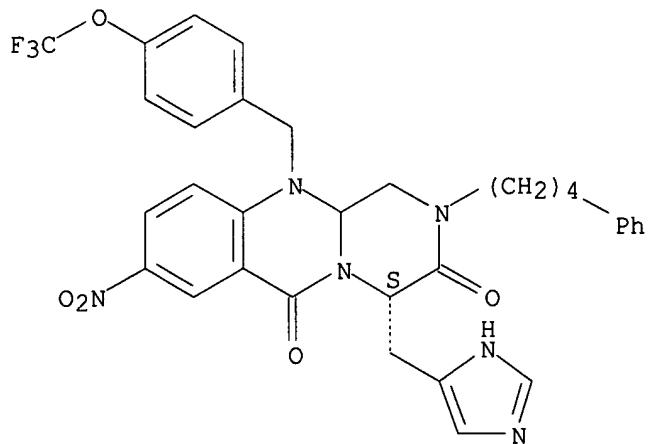


RN 779343-91-8 HCAPLUS
 CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-4-(1H-imidazol-4-ylmethyl)-8-nitro-2-(4-phenylbutyl)-11-[[4-(trifluoromethoxy)phenyl]methyl]-, (4S)-, mono(trifluoroacetate) (9CI)
 (CA INDEX NAME)

CM 1

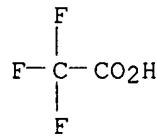
CRN 779343-90-7
 CMF C33 H31 F3 N6 O5

Absolute stereochemistry.



CM 2

CRN 76-05-1
 CMF C2 H F3 O2



RN 779343-93-0 HCAPLUS

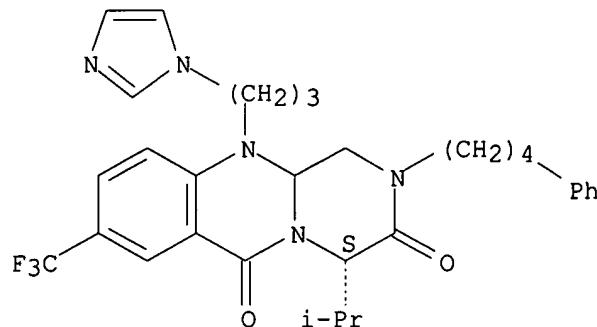
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-2-(4-phenylbutyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 779343-92-9

CMF C31 H36 F3 N5 O2

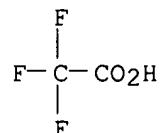
Absolute stereochemistry.



CM 2

CRN 76-05-1

CMF C2 H F3 O2



RN 779343-95-2 HCAPLUS

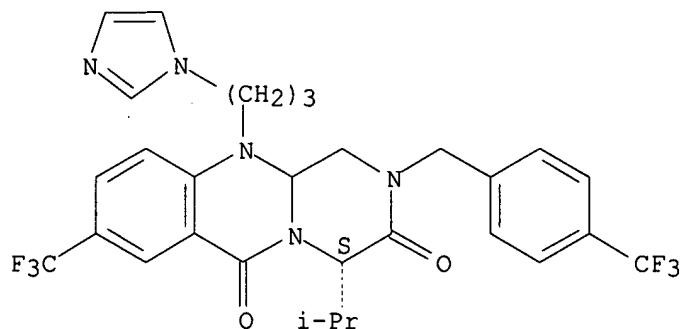
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-(trifluoromethyl)-2-[4-(trifluoromethyl)phenyl]methyl-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 779343-94-1

CMF C29 H29 F6 N5 O2

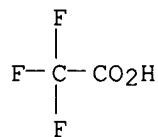
Absolute stereochemistry.



CM 2

CRN 76-05-1

CMF C2 H F3 O2



RN 779343-97-4 HCAPLUS

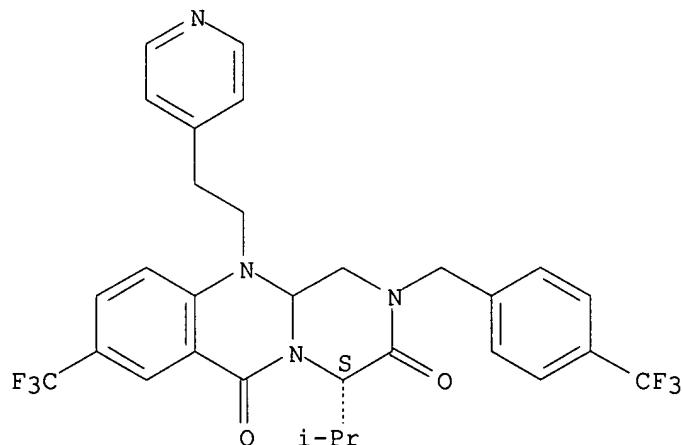
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-4-(1-methylethyl)-11-[2-(4-pyridinyl)ethyl]-8-(trifluoromethyl)-2-[{4-(trifluoromethyl)phenyl}methyl]-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 779343-96-3

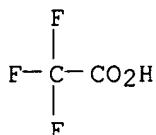
CMF C30 H28 F6 N4 O2

Absolute stereochemistry.



CM 2

CRN 76-05-1
 CMF C2 H F3 O2

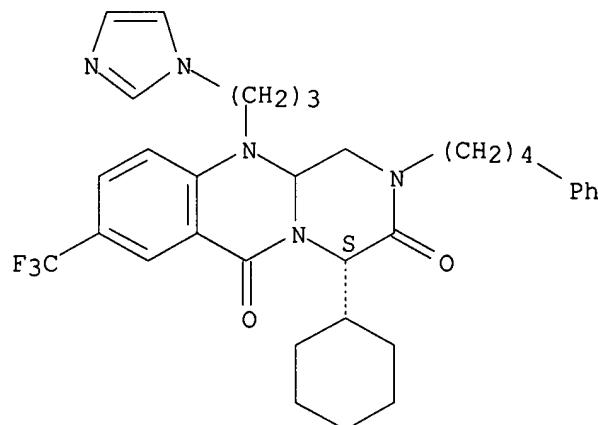


RN 779343-99-6 HCAPLUS
 CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-cyclohexyl-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-2-(4-phenylbutyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

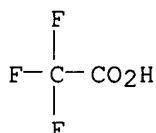
CRN 779343-98-5
 CMF C34 H40 F3 N5 O2

Absolute stereochemistry.



CM 2

CRN 76-05-1
 CMF C2 H F3 O2



RN 779344-01-3 HCAPLUS
 CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[(2,4-

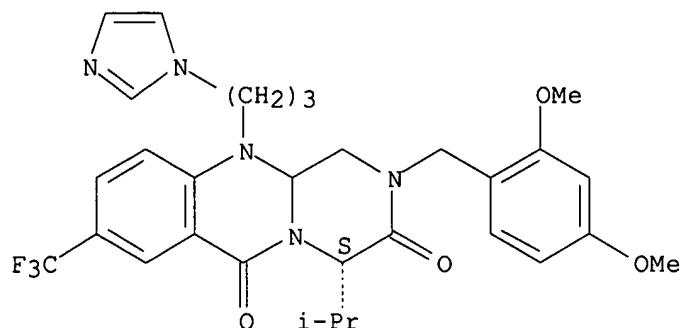
dimethoxyphenyl)methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 779344-00-2

CMF C30 H34 F3 N5 O4

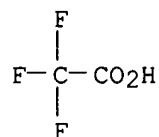
Absolute stereochemistry.



CM 2

CRN 76-05-1

CMF C2 H F3 O2



RN 779344-03-5 HCAPLUS

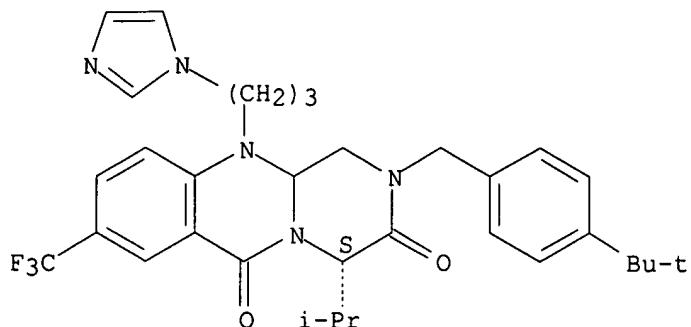
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl)methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

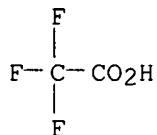
CRN 779344-02-4

CMF C32 H38 F3 N5 O2

Absolute stereochemistry.



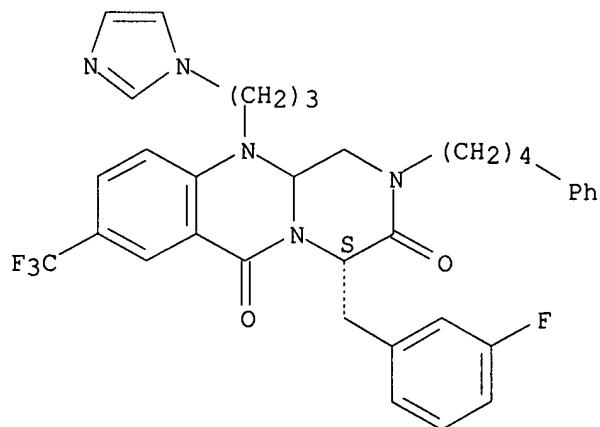
CM 2

CRN 76-05-1
CMF C2 H F3 O2RN 779344-05-7 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-[(3-fluorophenyl)methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-2-(4-phenylbutyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

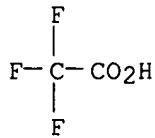
CRN 779344-04-6
CMF C35 H35 F4 N5 O2

Absolute stereochemistry.

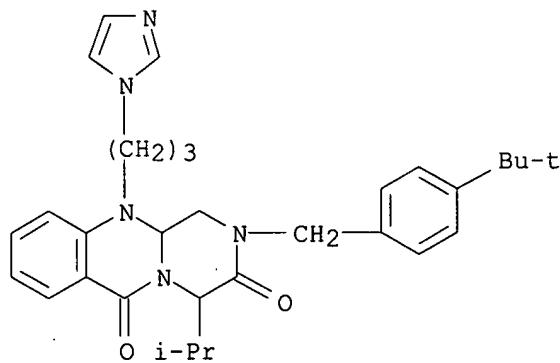


CM 2

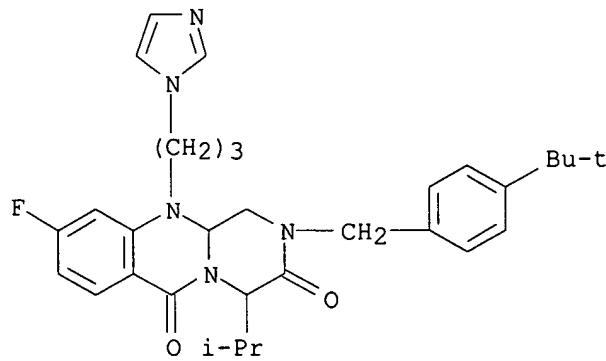
CRN 76-05-1
 CMF C2 H F3 O2



RN 779344-07-9 HCAPLUS
 CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)- (9CI) (CA INDEX NAME)

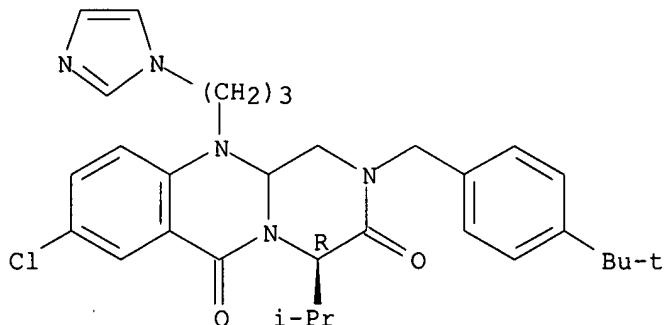


RN 779344-08-0 HCAPLUS
 CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-9-fluoro-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



RN 779344-09-1 HCAPLUS
 CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 8-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-, (4R)- (9CI) (CA INDEX NAME)

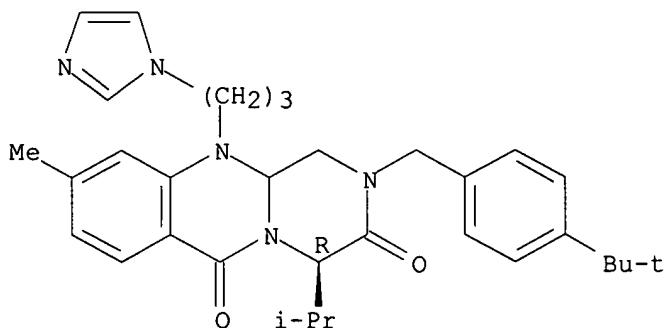
Absolute stereochemistry.



RN 779344-10-4 HCPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-9-methyl-4-(1-methylethyl)-, (4R)- (9CI) (CA INDEX NAME)

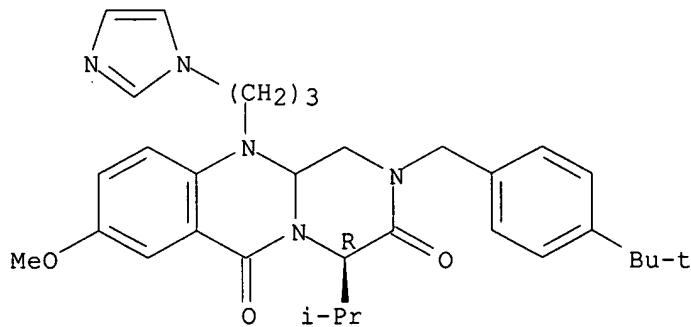
Absolute stereochemistry.



RN 779344-11-5 HCPLUS

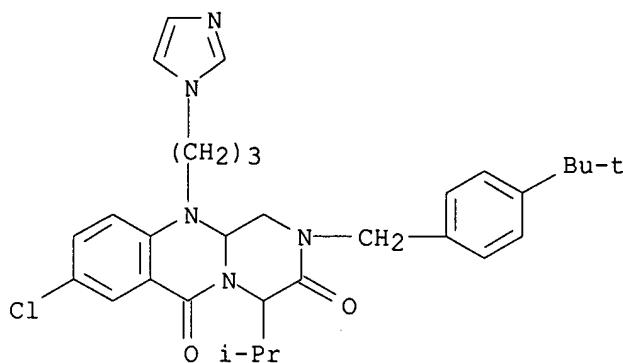
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-8-methoxy-4-(1-methylethyl)-, (4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



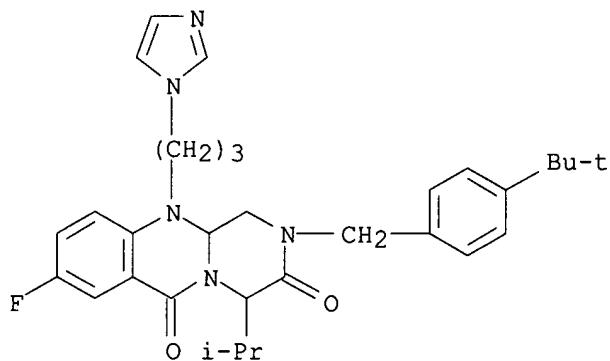
RN 779344-12-6 HCPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 8-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



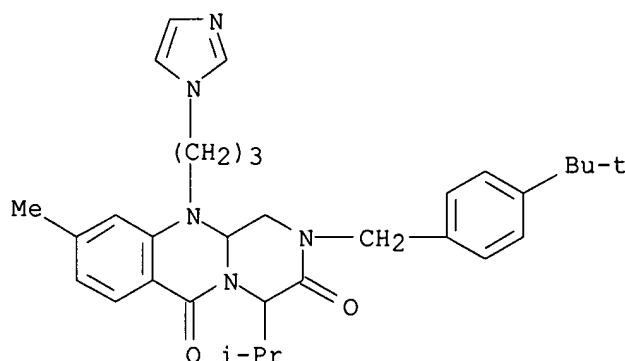
RN 779344-13-7 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-8-fluoro-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



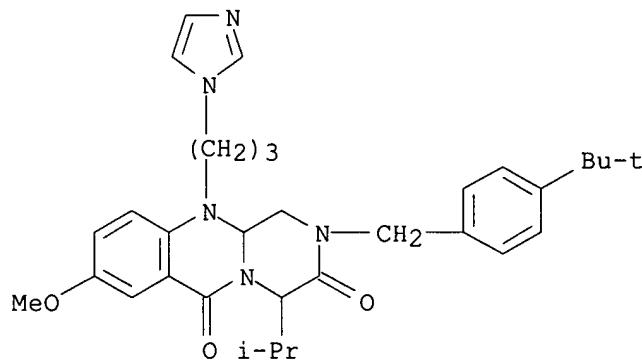
RN 779344-14-8 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-9-methyl-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



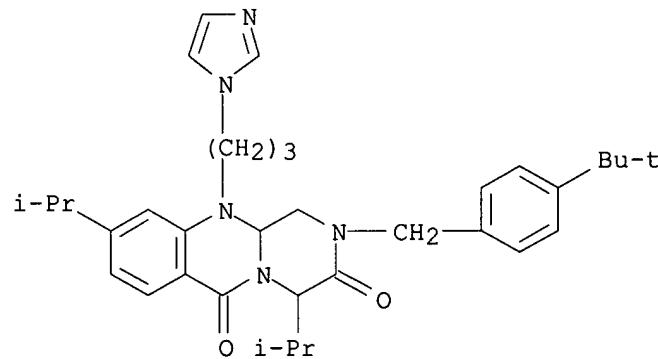
RN 779344-15-9 HCPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-8-methoxy-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



RN 779344-16-0 HCPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4,9-bis(1-methylethyl)- (9CI) (CA INDEX NAME)

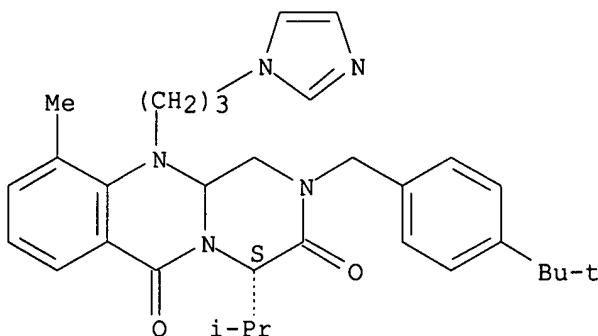


RN 779344-17-1 HCPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-

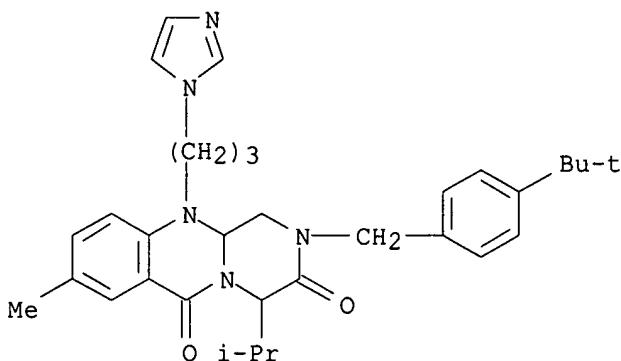
dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-10-methyl-4-(1-methylethyl)-, (4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



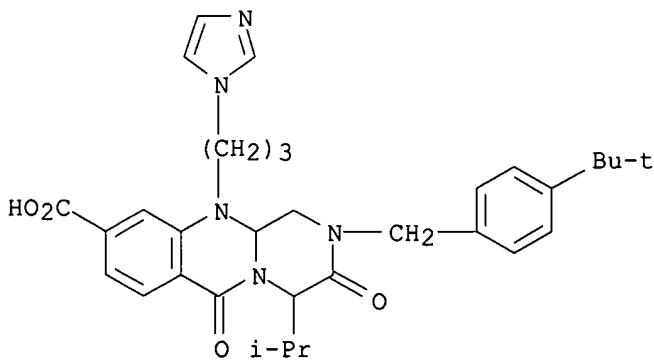
RN 779344-18-2 HCPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[(4-(1,1-dimethylethyl)phenyl)methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-8-methyl-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



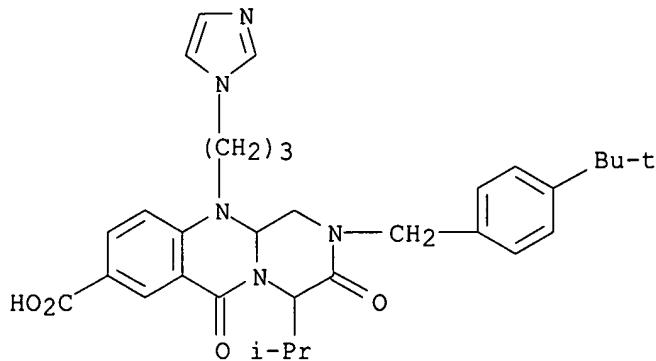
RN 779344-19-3 HCPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-9-carboxylic acid, 2-[(4-(1,1-dimethylethyl)phenyl)methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-3,6-dioxo- (9CI) (CA INDEX NAME)



RN 779344-20-6 HCAPLUS

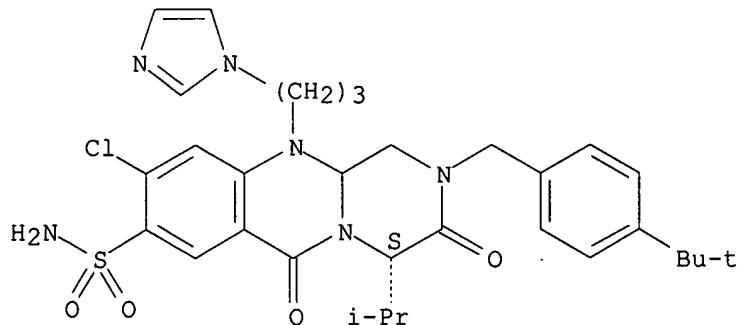
CN 2H-Pyrazino[2,1-b]quinazoline-8-carboxylic acid, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-3,6-dioxo- (9CI) (CA INDEX NAME)



RN 779344-21-7 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-8-sulfonamide, 9-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-3,6-dioxo-, (4S)- (9CI) (CA INDEX NAME)

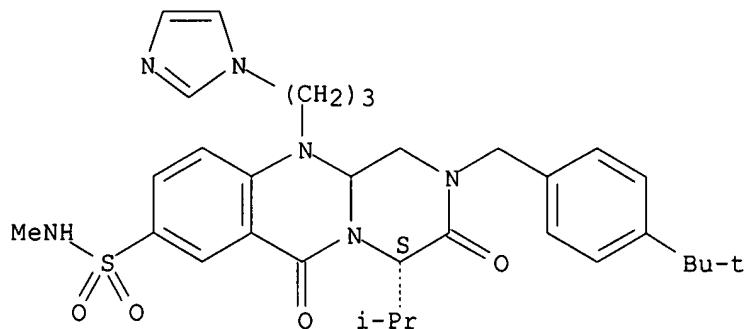
Absolute stereochemistry.



RN 779344-22-8 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-8-sulfonamide, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-N-methyl-4-(1-methylethyl)-3,6-dioxo-, (4S)- (9CI) (CA INDEX NAME)

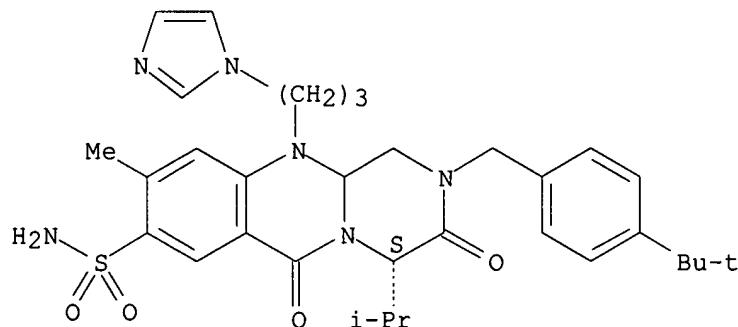
Absolute stereochemistry.



RN 779344-23-9 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-8-sulfonamide, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-9-methyl-4-(1-methylethyl)-3,6-dioxo-, (4S)- (9CI) (CA INDEX NAME)

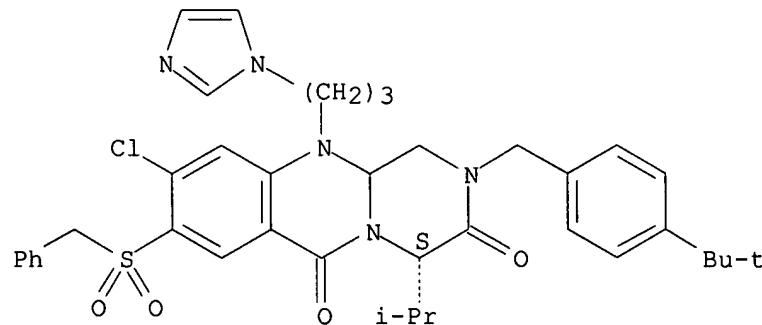
Absolute stereochemistry.



RN 779344-24-0 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 9-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-[(phenylmethyl)sulfonyl]-, (4S)- (9CI) (CA INDEX NAME)

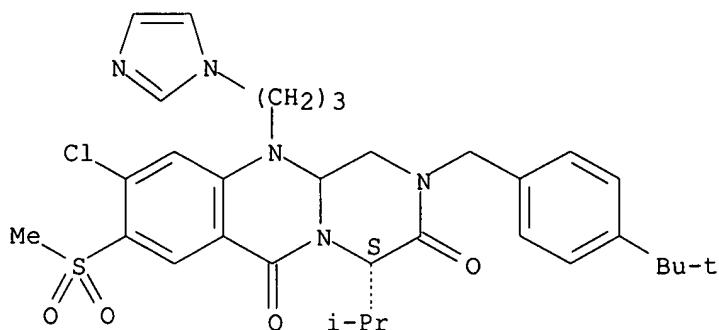
Absolute stereochemistry.



RN 779344-25-1 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 9-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-(methylsulfonyl)-, (4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



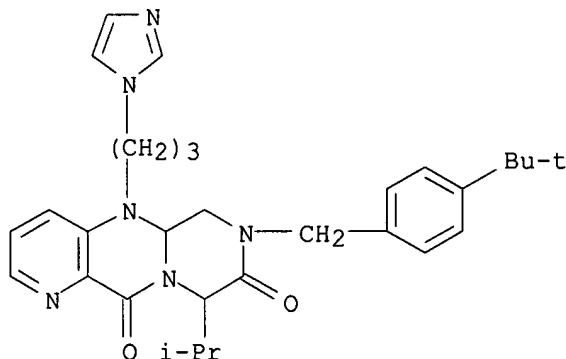
RN 779344-27-3 HCAPLUS

CN 7H-Pyrazino[1,2-a]pyrido[3,2-d]pyrimidine-8,11(5H,9H)-dione, 7-[[4-(1,1-dimethylethyl)phenyl]methyl]-5a,6-dihydro-5-[3-(1H-imidazol-1-yl)propyl]-9-(1-methylethyl)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

CRN 779344-26-2

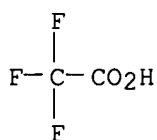
CMF C30 H38 N6 O2



CM 2

CRN 76-05-1

CMF C2 H F3 O2



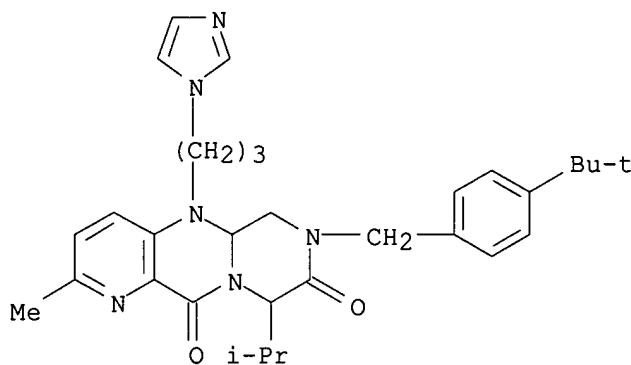
RN 779344-29-5 HCAPLUS

CN 7H-Pyrazino[1,2-a]pyrido[3,2-d]pyrimidine-8,11(5H,9H)-dione,
7-[[4-(1,1-dimethylethyl)phenyl]methyl]-5a,6-dihydro-5-[3-(1H-imidazol-1-
yl)propyl]-2-methyl-9-(1-methylethyl)-, mono(trifluoroacetate) (9CI) (CA
INDEX NAME)

CM 1

CRN 779344-28-4

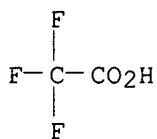
CMF C31 H40 N6 O2



CM 2

CRN 76-05-1

CMF C2 H F3 O2



RN 779344-32-0 HCAPLUS

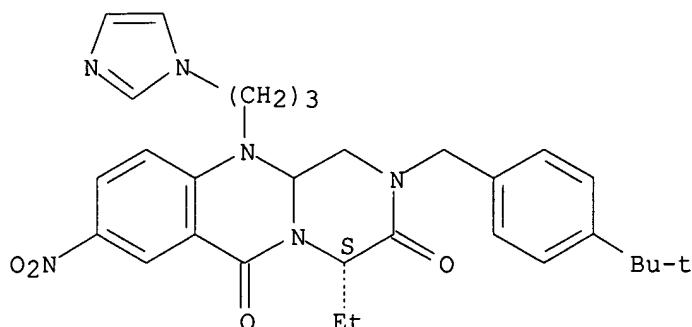
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[[4-(1,1-
dimethylethyl)phenyl]methyl]-4-ethyl-1,2,11,11a-tetrahydro-11-[3-(1H-
imidazol-1-yl)propyl]-8-nitro-, (4S)-, mono(trifluoroacetate) (9CI) (CA
INDEX NAME)

CM 1

CRN 779344-31-9

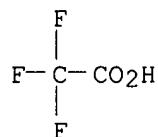
CMF C30 H36 N6 O4

Absolute stereochemistry.



CM 2

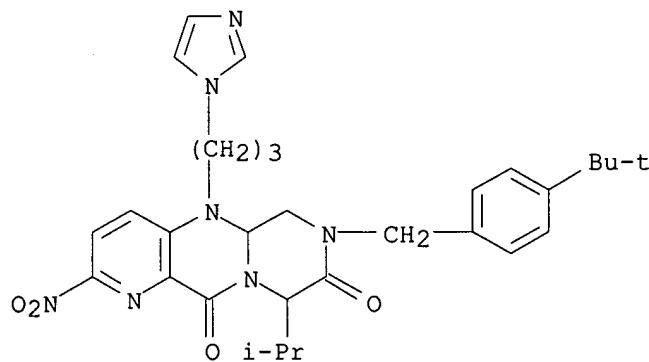
CRN 76-05-1
CMF C2 H F3 O2



RN 779344-34-2 HCPLUS
CN 7H-Pyrazino[1,2-a]pyrido[3,2-d]pyrimidine-8,11(5H,9H)-dione,
7-[4-(1,1-dimethylethyl)phenyl]methyl]-5a,6-dihydro-5-[3-(1H-imidazol-1-
yl)propyl]-9-(1-methylethyl)-2-nitro-, mono(trifluoroacetate) (9CI) (CA
INDEX NAME)

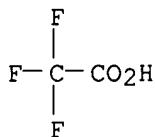
CM 1

CRN 779344-33-1
CMF C30 H37 N7 O4



CM 2

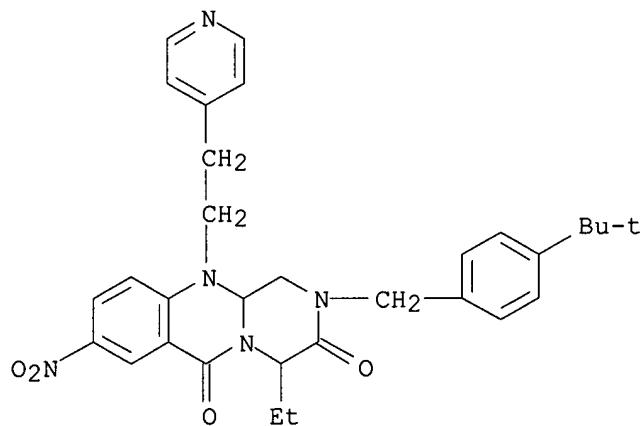
CRN 76-05-1
 CMF C2 H F3 O2



RN 779344-36-4 HCPLUS
 CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-4-ethyl-1,2,11,11a-tetrahydro-8-nitro-11-[2-(4-pyridinyl)ethyl]-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

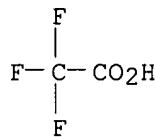
CM 1

CRN 779344-35-3
 CMF C31 H35 N5 O4



CM 2

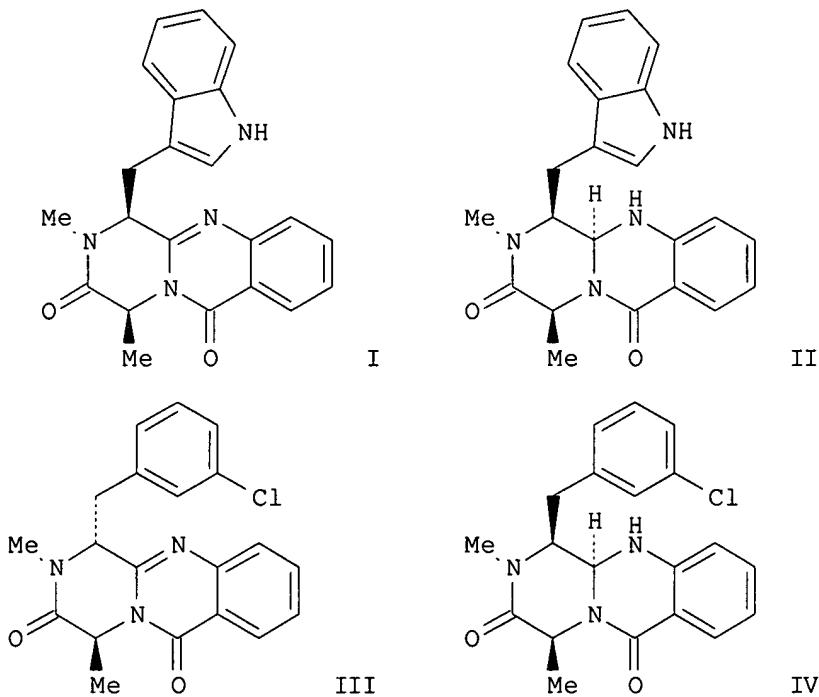
CRN 76-05-1
 CMF C2 H F3 O2



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 2 HCPLUS COPYRIGHT 2006 ACS on STN
 ACCESSION NUMBER: 1999:529844 HCPLUS

DOCUMENT NUMBER: 131:286484
 TITLE: Synthesis and stereochemistry of 11,11a-dihydro derivatives of (4S)-2,4-dimethyl-2,4-dihydro-1H-pyrazino[2,1-b]quinazoline-3,6-diones. A new transannular rearrangement proposal
 AUTHOR(S): Martin-Santamaria, Sonsoles; Espada, Modesta;
 Avendano, Carmen
 CORPORATE SOURCE: Departamento de Quimica Organica y Farmaceutica
 Facultad de Farmacia, Universidad Complutense, Madrid,
 28040, Spain
 SOURCE: Journal of Organic Chemistry (1999), 64(19), 7233-7235
 CODEN: JOCEAH; ISSN: 0022-3263
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



AB Reduction of the (indolylmethyl)dihydropyrazinoquinazolinedione I by NaBH₄/EtOH gave the tetrahydropyrazinoquinazolinedione II, whereas similar reduction of (chlorobenzyl)dihydropyrazinoquinazolinedione III gave the tetrahydropyrazinoquinazolinedione with epimerization at C-1. A proposed mechanism for the epimerization involved transannular rearrangement and formation of a ten-membered-ring anion intermediate.

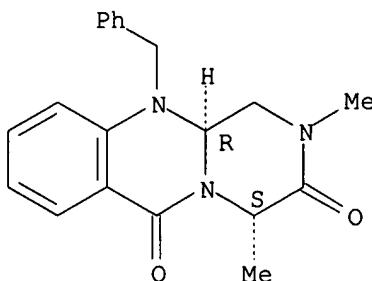
IT 246542-03-0P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (transannular rearrangement mechanism in borohydride
 reduction/epimerization of dihydrodimethylpyrazinoquinazolinediones)

RN 246542-03-0 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 11,11a-dihydro-2,4-dimethyl-11-(phenylmethyl)-, (4S,11aR)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

```
=> file beist
'BEIST' IS NOT A VALID FILE NAME
SESSION CONTINUES IN FILE 'HCAPLUS'
Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files
that are available. If you have requested multiple files, you can
specify a corrected file name or you can enter "IGNORE" to continue
accessing the remaining file names entered.
```

```
=> fil beilst
FILE 'BEILSTEIN' ENTERED AT 15:02:42 ON 03 FEB 2006
COPYRIGHT (c) 2006 Beilstein-Institut zur Foerderung der Chemischen Wissenschaften
licensed to Beilstein GmbH and MDL Information Systems GmbH
```

FILE LAST UPDATED ON JANUARY 17, 2006

FILE COVERS 1771 TO 2005.
*** FILE CONTAINS 9,428,406 SUBSTANCES ***

```
>>> PLEASE NOTE: Reaction Data and substance data are stored in
separate documents and can not be searched together in one query.
Reaction data for BEILSTEIN compounds may be displayed
immediately with the display codes PRE (preparations) and REA
(reactions). A substance answer set retrieved after the search
for a chemical name, a compounds with available reaction
information by combining with PRE/FA, REA/FA or more generally
with RX/FA. The BEILSTEIN Registry Number (BRN) is the link
between a BEILSTEIN compound and belonging reactions. For mo
detailed reaction searches BRNs can be searched as reaction
partner BRNs Reactant BRN (RX.RBRN) or Product BRN (RX.PBRN).<<<
```

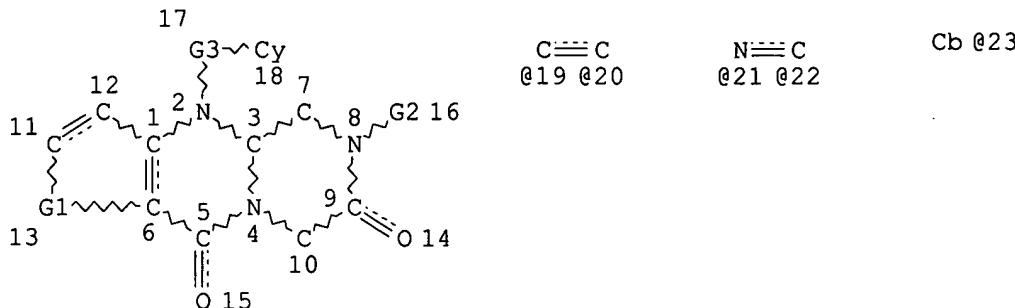
>>> FOR SEARCHING PREPARATIONS SEE HELP PRE <<<

```
*****
* PLEASE NOTE THAT THERE ARE NO FORMATS FREE OF COST. *
* SET NOTICE FEATURE: THE COST ESTIMATES CALCULATED FOR SET NOTICE *
* ARE BASED ON THE HIGHEST PRICE CATEGORY. THEREFORE; THESE *
* ESTIMATES MAY NOT REFLECT THE ACTUAL COSTS. *
* FOR PRICE INFORMATION SEE HELP COST *
*****
```

NEW

- * PATENT NUMBERS (PN) AND BABS ACCESSION NUMBERS (BABSAN) CAN NOW BE SEARCHED, SELECTED AND TRANSFERRED.
- * NEW DISPLAY FORMATS ALLREF, ALLP AND BABSAN SHOW ALL REFERENCES, ALL PATENT REFERENCES, OR ALL BABS ACCESSION NUMBERS FOR A COMPOUND AT A GLANCE.

=> d que stat 18
L1 STR



VAR G1=19-11 20-6/21-11 22-6/22-11 21-6

VAR G2=23/AK

REP G3=(1-5) CH2

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
GGCAT IS SAT AT 23
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 23

STEREO ATTRIBUTES: NONE

STEREO ATTRIBUTES: NONE
1.8 1 SEA FILE=BELLSTEIN SSS FUL L1

100.0% PROCESSED 280 ITERATIONS
SEARCH TIME: 00.00.06

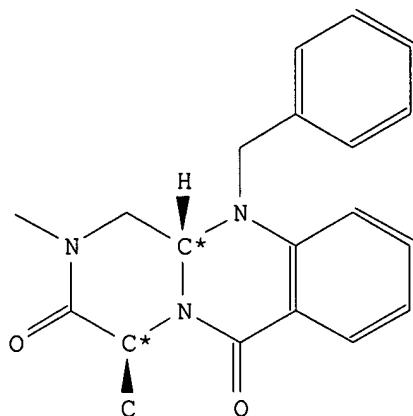
1 ANSWERS

=> d 18 ide allref

L8 ANSWER 1 OF 1 BEILSTEIN COPYRIGHT 2006 BEILSTEIN MDL on STN

Beilstein Records (BRN):	8433173
Chemical Name (CN):	(4S,11aS)-11-benzyl-2,4-dimethyl- 2,4,11,11a-tetrahydro-1H-pyrazino<2,1- b>quinazoline-3,6-dione
Autonom Name (AUN):	9-benzyl-2,4-dimethyl-1,2,9,9a-tetrahydro- 2,4a,9-triaza-anthracene-3,10-dione
Molec. Formula (MF):	C20 H21 N3 O2
Molecular Weight (MW):	335.40
Lawson Number (LN):	30150, 14140, 2817
File Segment (FS):	Stereo compound
Compound Type (CTYPE):	heterocyclic
Constitution ID (CONSID):	7153145
Tautomer ID (TAUTID):	7942403

Entry Date (DED): 2000/05/16
 Update Date (DUPD): 2000/05/16



Field Availability:

Code	Name	Occurrence
BRN	Beilstein Records	1
CN	Chemical Name	1
AUN	Autonomname	1
MF	Molecular Formula	1
FW	Formular Weight	1
LN	Lawson Number	3
FS	File Segment	1
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
DED	Entry Date	1
DUPD	Update Date	1
IR	Infrared Spectrum	1
NMR	Nuclear Magnetic Resonance	3
ORP	Optical Rotatory Power	1

This substance also occurs in Reaction Documents:

Code	Name	Occurrence
RX	Reaction Documents	1
RXPRO	Substance is Reaction Product	1

All References:

ALLREF

1. Martin-Santamaria, Sonsoles; Espada, Modesta; Avendano, Carmen, J.Org.Chem., CODEN: JOCEAH, 64(19), <1999>, 7233 - 7235; BABS-6210846